Amendments to the Specification

Please replace the paragraph beginning at page 2, 7th line from the bottom, beginning with: "Already the devices claimed", with the following amended paragraph:

Already the devices claimed by Soluri et al. (see U.S. patent application Ser. Nos. 09/202,894 and 09/202,790), in addition to those claimed by Francesco De Notaristefani et al. (WO 96/379791), Sealock et al. (U.S. Pat. No. 5,783,829), Stan Majewski et al. (U.S. Pat. No. 5,864,141), Scibilia et al. (U.S. Pat. No. 6,021,341), propose improvements both in terms of spatial resolution and in terms of reduced size and weight. Nevertheless, in some applications, the required spatial resolution becomes a fundamental parameter, so it is necessary to improve spatial resolution.

Please replace the paragraph beginning at page 19, third line from the bottom, beginning with: "It should be kept in mind that", with the following amended paragraph:

It should be kept in mind that, in the multiple solution in which the photomultipliers and the related collimators are positioned adjacent, the outer lateral walls of the photomultipliers are maintained electrically isolated, then

the thickness of the layer of electrical insulator (~~mylar~~MYLAR®, a thin strong polyester film, ~~teflon~~TEFLON®, polytetrafluoroethylene, or other material with similar characteristic) must be kept smaller than or equal to the thickness of the septum of the underlying collimator. For example, if the thickness of said septum is 0.15 mm, then the distance that separates the two photomultipliers must be no more than 0.15 mm. In this case the data of the formula that determines the dimensions of the hole of the collimator and the dimension of the crystal, are slightly different, since the last septum will, in practice, have a thickness equal to half the septum (0.075 mm) because the continuation of the septum of the collimator (another 0.075 mm) will belong to the collimator of the neighbouring photomultiplier. This holds true for each direction in which multiple photomultipliers are connected to build a matrix of photomultipliers suitable for forming areas larger than the individual element. A photomultiplier or (as it is also commonly called) position sensitive photomultiplier tube 3 converts the scintillation light signals, corresponding to each individual event, into a charge distribution on the plane XY, hence memorising both the number of light photons generated by the event, and the position of the individual crystal that generated them. This is made possible by an appropriate charge multiplication

system, within the PSPMT, which amplifies the quantity of charge produced at the photo-cathode in such a way as to allow the operation of the signal conditioning circuits, as shall be discussed farther on.